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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,644	12/27/2001	Katrina Mikhaylichenko	LAM2P316	7982
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MARTINE & PENILLA, LLP 710 LAKEWAY DRIVE SUITE 170 SUNNYVALE, CA 94085			NGUYEN, KHIEM D	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,644

Applicant(s)

MIKHAYLICHENKO ET AL.

Examiner

Khiem D Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 031804. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent 6,315,637).

In re claim 1, AAPA discloses a method for cleaning a semiconductor wafer, comprising: plasma etching a feature (**FIGS. 1A-B: 17**) into a low K dielectric layer (**FIGS. 1A-B: 16**) having a photoresist mask (**FIG. 1A: 18**), the plasma generating etch residues (**FIG. 1A: 22**) in and around the feature (page 1, line 20 to page 2, line 17 and **FIGS. 1A-B**); and ashing the semiconductor wafer to remove the photoresist mask, the ashing generating ashing residues (**FIG. 1B: 27**) (page 2, line 18 to page 3, line 4 and **FIG. 1B**);

AAPA discloses (page 3, lines 5-12) removing the etching residues and the ashing residues from the low K dielectric layer by moving the wafer into the chemical bath containing liquids but does not explicitly disclose removing the etching residues and the ashing residues from the low K dielectric layer having the plasma etched feature, the removing being enhanced by scrubbing the low K dielectric layer of the semiconductor

wafer with a wet brush that applied a fluid mixture including a cleaning chemistry and a wetting agent.

Apelgren, however, discloses a method for cleaning a semiconductor wafer, comprising (col. 4, line 6 to col. 5, line 51 and **FIGS. 1-7**): plasma etching a feature (**FIGS. 3-4: 28 and 30**) (col. 4, lines 17-28) into a low K dielectric layer (**FIGS. 3-4: 24**) (col. 2, lines 2-15 and col. 4, lines 6-16) having a photoresist mask (**FIG. 4: 26**) (col. 3, line 66 to col. 4, line 5), and removing the etching residues and the ashing residues from the low K dielectric layer having the plasma etched feature, the removing being enhanced by scrubbing the low K dielectric layer of the semiconductor wafer with a wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent (col. 5, lines 24-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Apelgren to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to remove any remnants of the layer of photoresist (col. 5, lines 25-26).

In re claim 8, Apelgren discloses scrubbing the low K dielectric layer using the brush while applying deionized water after removing the etching residues and the ashing residues (col. 5, lines 24-30).

2. Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent

6,315,637) as applied to claims 1 and 8 above, and further in view of Yoon (U.S. Pub. 2002/0090784).

In re claim 2, Yoon discloses wherein the wetting agent is a surfactant and the cleaning chemistry includes a combination of NH_2OH , H_2O_2 , and deionized (DI) water (page 4, paragraph [0048]).

In re claim 3, the use of a surfactant selected from a group comprising fluorosurfactants and hydrocarbon surfactants is well-known to one of ordinary skill in the art of making semiconductor devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the known process into AAPA and Apelgren's method to enable provision of the surfactant of AAPA and Apelgren's.

In re claims 4 and 5, there is no evidence indicating that the percent by weight range of the surfactant concentration is critical and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05.

In re claims 6 and 7, Yoon discloses wherein the combination ratio of NH_2OH , H_2O_2 , and deionized (DI) water is between about 1:4:20 (page 4, paragraph [0048]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Apelgren, and Yoon to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to

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be performed and furthermore to completely remove the damaged layer and the plate-shaped defect (page 4, paragraph [0048]).

3. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent 6,315,637).

In re claim 9, AAPA discloses a method for cleaning a semiconductor wafer, comprising: plasma etching a feature (**FIGS. 1A-B: 17**) into a low K dielectric layer (**FIGS. 1A-B: 16**), the plasma generating etch residues (**FIG. 1A: 22**) in and around the feature (page 1, line 20 to page 2, line 17 and **FIGS. 1A-B**); and subjecting the semiconductor wafer to an ashing operation, the ashing operation generating ashing residues (**FIG. 1B: 27**) (page 2, line 18 to page 3, line 4 and **FIG. 1B**);

AAPA discloses (page 3, lines 5-12) removing the etching residues and the ashing residues from the low K dielectric layer by moving the wafer into the chemical bath containing liquids but does not explicitly disclose scrubbing the low K dielectric layer having the plasma-etched feature, using a mixture fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured to condition the low K dielectric layer to facilitate cleaning of the etch residues and the ashing residues with the cleaning chemistry.

Apelgren, however, discloses a method for cleaning a semiconductor wafer, comprising (col. 4, line 6 to col. 5, line 51 and **FIGS. 1-7**): plasma etching a feature (**FIGS. 3-4: 28 and 30**) (col. 4, lines 17-28) into a low K dielectric layer (**FIGS. 3-4: 24**) (col. 2, lines 2-15 and col. 4, lines 6-16) having a photoresist mask (**FIG. 4: 26**) (col. 3,

line 66 to col. 4, line 5), and scrubbing the low K dielectric layer having the plasma-etched feature, using a mixture fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured to condition the low K dielectric layer to facilitate cleaning of the etch residues and the ashing residues with the cleaning chemistry (col. 5, lines 24-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Apelgren to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to remove any remnants of the layer of photoresist (col. 5, lines 25-26).

In re claim 10, Apelgren discloses scrubbing the low K dielectric layer using the brush while applying deionized water after removing the etching residues and the ashing residues (col. 5, lines 24-30).

4. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent 6,315,637) as applied to claims 9 and 10 above, and further in view of Yoon (U.S. Pub. 2002/0090784).

In re claim 11, Yoon discloses wherein the wetting agent is a surfactant and the cleaning chemistry includes a combination of NH_2OH , H_2O_2 , and deionized (DI) water (page 4, paragraph [0048]).

In re claim 12, the use of a surfactant selected from a group comprising fluorosurfactants and hydrocarbon surfactants is well-known to one of ordinary skill in

the art of making semiconductor devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the known process into AAPA and Apelgren's method to enable provision of the surfactant of AAPA and Apelgren's.

In re claims 13 and 14, there is no evidence indicating that the percent by weight range of the surfactant concentration is critical and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05.

In re claims 15 and 16, Yoon discloses wherein the combination ratio of NH_2OH , H_2O_2 , and deionized (DI) water is between about 1:4:20 (page 4, paragraph [0048]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Apelgren, and Yoon to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to completely remove the damaged layer and the plate-shaped defect (page 4, paragraph [0048]).

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent 6,315,637).

In re claim 17, AAPA discloses a method for cleaning a semiconductor wafer, comprising: plasma etching a feature (**FIGS. 1A-B: 17**) into a low K dielectric layer (**FIGS. 1A-B: 16**), the plasma generating etch residues (**FIG. 1A-B: 22**) in and around the feature (page 1, line 20 to page 2, line 17 and **FIGS. 1A-B**); and subjecting the

semiconductor wafer to an ashing operation, the ashing operation generating ashing residues (**FIG. 1B: 27**) (page 2, line 18 to page 3, line 4 and **FIG. 1B**);

AAPA discloses (page 3, lines 5-12) removing the etching residues and the ashing residues from the low K dielectric layer by moving the wafer into the chemical bath containing liquids but does not explicitly disclose scrubbing the low K dielectric layer having the plasma-etched feature, using a mixture fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured to condition the low K dielectric layer to facilitate cleaning of the etch residues and the ashing residues with the cleaning chemistry; and scrubbing the low K dielectric layer having the plasma etched feature, using the brush while applying deionized (DI) water after removing the etching residues and the ashing residues.

Apelgren, however, discloses a method for cleaning a semiconductor wafer, comprising (col. 4, line 6 to col. 5, line 51 and **FIGS. 1-7**): plasma etching a feature (**FIGS. 3-4: 28 and 30**) (col. 4, lines 17-28) into a low K dielectric layer (**FIGS. 3-4: 24**) (col. 2, lines 2-15 and col. 4, lines 6-16) having a photoresist mask (**FIG. 4: 26**) (col. 3, line 66 to col. 4, line 5), and scrubbing the low K dielectric layer having the plasma-etched feature, using a mixture fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured to condition the low K dielectric layer to facilitate cleaning of the etch residues and the ashing residues with the cleaning chemistry; and scrubbing the low K dielectric layer having the plasma etched feature, using the brush while applying deionized (DI) water after removing the etching residues and the ashing residues (col. 5, lines 24-51). Therefore, it would have been obvious to one of ordinary

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skill in the art at the time of the invention was made to combine the teaching of AAPA and Apelgren to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to remove any remnants of the layer of photoresist (col. 5, lines 25-26).

6. Claims 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent 6,315,637) as applied to claim 17 above, and further in view of Yoon (U.S. Pub. 2002/0090784).

In re claim 18, Yoon discloses wherein the wetting agent is a surfactant and the cleaning chemistry includes a combination of NH_2OH , H_2O_2 , and deionized (DI) water (page 4, paragraph [0048]).

In re claim 19, the use of a surfactant selected from a group comprising fluorosurfactants and hydrocarbon surfactants is well-known to one of ordinary skill in the art of making semiconductor devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the known process into AAPA and Apelgren's method to enable provision of the surfactant of AAPA and Apelgren's.

In re claims 20 and 21, there is no evidence indicating that the percent by weight range of the surfactant concentration is critical and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05.

In re claims 22 and 23, Yoon discloses wherein the combination ratio of NH_2OH , H_2O_2 , and deionized (DI) water is between about 1:4:20 (page 4, paragraph [0048]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Apelgren, and Yoon to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to completely remove the damaged layer and the plate-shaped defect (page 4, paragraph [0048]).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Apelgren et al. (U.S. Patent 6,315,637) and Yoon (U.S. Pub. 2002/0090784).

In re claim 17, AAPA discloses a method for cleaning a semiconductor wafer, comprising: plasma etching a feature (**FIGS. 1A-B: 17**) into a low K dielectric layer (**FIGS. 1A-B: 16**), the plasma generating etch residues (**FIG. 1A: 22**) in and around the feature (page 1, line 20 to page 2, line 17 and **FIGS. 1A-B**); and subjecting the semiconductor wafer to an ashing operation, the ashing operation generating ashing residues (**FIG. 1B: 27**) (page 2, line 18 to page 3, line 4 and **FIG. 1B**);

AAPA discloses (page 3, lines 5-12) removing the etching residues and the ashing residues from the low K dielectric layer by moving the wafer into the chemical bath containing liquids but does not explicitly disclose scrubbing the low K dielectric layer having the plasma-etched feature, using a mixture fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured to condition the low K dielectric

layer to facilitate cleaning of the etch residues and the ashing residues with the cleaning chemistry; and scrubbing the low K dielectric layer having the plasma etched feature, using the brush while applying deionized (DI) water after removing the etching residues and the ashing residues.

Apelgren, however, discloses a method for cleaning a semiconductor wafer, comprising (col. 4, line 6 to col. 5, line 51 and **FIGS. 1-7**): plasma etching a feature (**FIGS. 3-4: 28 and 30**) (col. 4, lines 17-28) into a low K dielectric layer (**FIGS. 3-4: 24**) (col. 2, lines 2-15 and col. 4, lines 6-16) having a photoresist mask (**FIG. 4: 26**) (col. 3, line 66 to col. 4, line 5), and scrubbing the low K dielectric layer having the plasma-etched feature, using a mixture fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured to condition the low K dielectric layer to facilitate cleaning of the etch residues and the ashing residues with the cleaning chemistry; and scrubbing the low K dielectric layer having the plasma etched feature, using the brush while applying deionized (DI) water after removing the etching residues and the ashing residues (col. 5, lines 24-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Apelgren to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to remove any remnants of the layer of photoresist (col. 5, lines 25-26).

Neither AAPA nor Apelgren explicitly disclose wherein the wetting agent being a surfactant and the cleaning chemistry being a standard clean-1 (SC-1) solution including

a combination of NH_2OH , H_2O_2 , and deionized (DI) water, the surfactant having a concentration between about 0.005 percent by weight to about 0.1 percent by weight, combination ratio of NH_2OH , H_2O_2 , and DI water being between about 1:4:10 and about 1:4:30.

Yoon, however, discloses wherein the wetting agent being a surfactant and the cleaning chemistry being a standard clean-1 (SC-1) including a combination of NH_2OH , H_2O_2 , and deionized (DI) water (page 4, paragraph [0048]) wherein the combination ratio of NH_2OH , H_2O_2 , and deionized (DI) water is about 1:4:20 (page 4, paragraph [0048]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Apelgren, and Yoon to enable the process of removing the etching residues and the ashing residues of AAPA using the wet brush that applies a fluid mixture including a cleaning chemistry and a wetting agent to be performed and furthermore to completely remove the damaged layer and the plate-shaped defect (page 4, paragraph [0048]). Additionally, there is no evidence indicating that the percent by weight range of the surfactant concentration is critical and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05.

Response to Amendment and Arguments

Applicant's arguments filed May 21st, 2004 have been fully considered but they are not persuasive.

Applicants contend that the reference does not teach or suggest scrubbing the low k dielectric layer to remove etching and ashing residues after the ashing operation.

Furthermore, the Applicants argue that because Apelgren et al. singly or in combination with Yoon does not teach or suggest a brush for scrubbing etching and ashing residues off a wafer after an ashing operation that removes a photoresist layer, Applicants respectfully submit that Apelgren et al. cannot be combined with Yoon to render Applicants' claimed invention unpatentable over 35 U.S.C. § 103(a).

In response to Applicants' contention that reference does not teach or suggest scrubbing the low k dielectric layer to remove etching and ashing residues after the ashing operation, Examiner respectfully disagrees. Applicants are directed to (page 2, line 18 to page 3, line 4 and FIG. 1B, AAPA) where AAPA discloses plasma etching a feature (FIGS. 1A-B: 17) into a low K dielectric layer (FIGS. 1A-B: 16), the plasma generating etch residues (FIG. 1A: 22) in and around the feature (page 1, line 20 to page 2, line 17 and FIGS. 1A-B); and subjecting the semiconductor wafer to an ashing operation, the ashing operation generating ashing residues (FIG. 1B: 27) (page 2, line 18 to page 3, line 4 and FIG. 1B). Also, Applicants are directed to (col. 4, line 6 to col. 5, line 51 and FIGS. 1-7, Apelgren) where Apelgren discloses plasma etching a feature (FIGS. 3-4: 28 and 30) (col. 4, lines 17-28) into a low K dielectric layer (FIGS. 3-4: 24) (col. 2, lines 2-15 and col. 4, lines 6-16) having a photoresist mask (FIG. 4: 26) (col. 3, line 66 to col. 4, line 5), ashing to remove the photoresist mask, the ashing generating ashing residues, and scrubbing the low K dielectric layer to remove etching and ashing remnants (col. 5, lines 24-26), using deionized water, or a dilute chemical, such as

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hydrofluoric acid (HF) (col. 5, lines 26-30). Thus AAPA in combination with Apelgren do teach scrubbing the low k dielectric layer to remove etching and ashing residues after the ashing operation.

Since, AAPA is combinable with Apelgren to teach the above limitations. Yoon is also combinable with AAPA and Apelgren to disclose wherein the wetting agent is a surfactant and the cleaning chemistry includes a combination of NH_2OH , H_2O_2 , and deionized (DI) water (page 4, paragraph [0048], Yoon).

For these reasons, examiner holds the rejection proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (571) 272-1855. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.N.

August 01, 2004



**W. DAVID COLEMAN
PRIMARY EXAMINER**